

General Information or Other (PAR)

Event # 40005

Rep Org: GENERAL ELECTRIC COMPANY		Notification Date / Time: 07/18/2003 12:13 (EDT)	
Supplier: GENERAL ELECTRIC COMPANY		Event Date / Time: 07/18/2003 (PDT)	
		Last Modification: 11/18/2003	
Region: 4		Docket #:	
City: SAN JOSE		Agreement State: Yes	
County:		License #:	
State: CA			
NRC Notified by: JASON POST		Notifications: JACK FOSTER	NRR
HQ Ops Officer: STEVE SANDIN		ANIELLO DELLA GRECA	R1
Emergency Class: NON EMERGENCY		JOHN MADERA	R3
10 CFR Section:		LINDA SMITH	R4
21.21 UNSPECIFIED PARAGRAPH			

## PART 21 REPORT INVOLVING IMPACT OF FUEL CHANNEL BOW ON CONTROL ROD BLADES

The following is a portion of text received as a fax:

"July 18, 2003

"MFN 03-045

"Subject: 60 Day Interim Notification: Impact of Fuel Channel Bow on Control Rod Blade Deviations

"Reference: Letter from Jason Post (GENE) to USNRC, 'Interim Surveillance Program for Fuel Channel Bow Monitoring', MFN 03-030 Revision 1, April 30, 2003

"This communication is to inform you that GE Nuclear Energy (GENE) has been evaluating a potentially reportable condition (PRC) on the impact of fuel channel bow on control rod blades. The original channel bow evaluation for increased fuel channel - control rod blade interference did not consider previously evaluated deviations in the control rod blade. Channel bow can cause increased deflection and stresses in control rod blades, which must be considered in control rod blade deviation evaluations. The PRC evaluation is limited to control rod blades delivered to those plants identified in the referenced letter, where an interim surveillance plan for channel bow monitoring is recommended, because those are the only plants where there is a concern about increased fuel channel - control rod blade interference.

"As described in the referenced letter, it was determined that BWR/6 and BWR/4 & 5 C-lattice plants with Global Nuclear Fuel (GNF) thick/thin channels potentially have increased channel bow that can cause fuel channel control rod blade interference. An interim surveillance program was provided to augment the surveillance requirements in the plant Technical Specifications until other actions, which mitigate or limit the potential for control rod - fuel channel interference due to channel bow can be identified and implemented. This surveillance program provides early indication of potentially degraded operational performance and assurance that action is taken before reaching excessive levels of control rod interference. This surveillance plan is limited to BWR/6 and BWR/4&5 C-

IE19

## General Information or Other (PAR)

Event # 40005

lattice plants with GNF thick/thin channels and GENE control rods. There have been no indications of excessive interference on BWR/2, 3 and 4 D-lattice plants, and as a result, they are excluded from the interim surveillance program.

"The PRC evaluation was initiated by GENE on May 19, 2003. GENE will not have completed the evaluation by July 18, 2003, when the 60 day evaluation period expires. Therefore, GENE is submitting this 60 Day Interim Notification under 10CFR21.21(a)(2) to inform the NRC that we are working on the issue, and to commit to report the results of the evaluation no later than September 23, 2003."

GE Nuclear Energy has identified the following as affected plants: Clinton, Nine Mile Point 2, Fermi 2, Grand Gulf, River Bend, Limerick 1 & 2 and Perry 1.

\*\*\*\*\*UPDATE ON 9/24/03 AT 0055 FROM POST TO LAURA\*\*\*\*\*

GE submitted its 60 day update letter which indicated no change from previously submitted information.

\* \* \* UPDATE ON 11/18/03 @ 2115 BY JASON POST TO GOULD \* \* \*

This communication is to inform you that GE Nuclear Energy (GENE) has completed the evaluation of the potentially reportable condition (PRC) identified in References 2 and 3 and has concluded that it is NOT a Reportable Condition under 10CFR21.

Channel bow can cause increased deflection and stresses in control rod blades. The impact of channel bow on as-designed control rod blades was considered when the surveillance program identified in Reference 1 was developed. However, the evaluation did not consider known control rod blade deviations from as-designed conditions that had previously been addressed. The evaluation to determine the impact of channel bow on control rod blade deviations, as reported to the NRC in References 2 and 3, has now been completed. The evaluation concluded that the increased loads from channel bow do not impact the structural integrity of control rods with known deviations from as-designed conditions. Therefore, it does not produce a significant safety hazard or lead to violation of a technical specification safety limit.

As described in the Reference 1 letter, it was determined that BWR/6 and BWR/4 & 5 C-lattice plants with Global Nuclear Fuel (GNF) thick/thin channels are potentially susceptible to increased channel bow that can cause increased fuel channel - control rod blade interference. A surveillance program is recommended per Reference 1 for the potentially susceptible 8 plants listed above. This evaluation examines known deviations from the as-designed condition for original equipment manufactured (OEM) control rod blades and for "DuraLife" and "Marathon" replacement blades in the potentially susceptible plants.

The PRC evaluation was initiated by GENE on May 19, 2003. GENE reported the results of the evaluation for OEM blades and "DuraLife" replacement blades in Reference 3. GENE has now completed the evaluation applicable to "Marathon" replacement blades. These evaluations indicate that there is no change from the previous information provided in Reference 1. Therefore, GENE is submitting this Final Notification to inform the NRC that the evaluations have been completed, and to report the GENE conclusion that this is NOT a Reportable Condition per 10CFR21.

## References:

1. Letter from Jason Post (GENE) to USNRC, "Interim Surveillance Program for Fuel Channel Bow Monitoring", MFN 03-030 Revision 1, April 30, 2003
2. Letter from Jason Post (GENE) to USNRC, "60 Day Interim Notification: Impact of Fuel Channel Bow on Control

General Information or Other (PAR)  
Rod Blade Deviations," MFN 03-045, July 18, 2003

Event # 40005

3. Letter from Jason Post (GENE) to USNRC, "60 Day Interim Notification: Impact of Fuel Channel Bow on Control Rod Blade Deviations," MFN 03-103, September 23, 2003

Notified Reg 1 RDO(Rogge), Reg 3 RDO(Lipa), Reg4 RDO(Kennedy), and NRR(Foster)

See related events #39634 and 39806

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**GE Nuclear Energy**

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*General Electric Company  
175 Curtner Ave., San Jose, CA 95125*

November 18, 2003  
MFN 03-146

Document Control Desk  
United States Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852-2738

**Subject: Final Report Notification - Impact of Fuel Channel Bow on Control Rod Blade Deviations**

**References:**

1. Letter from Jason Post (GENE) to USNRC, "Interim Surveillance Program for Fuel Channel Bow Monitoring", MFN 03-030 Revision 1, April 30, 2003
2. Letter from Jason Post (GENE) to USNRC, "60 Day Interim Notification: Impact of Fuel Channel Bow on Control Rod Blade Deviations," MFN 03-045, July 18, 2003
3. Letter from Jason Post (GENE) to USNRC, "60 Day Interim Notification: Impact of Fuel Channel Bow on Control Rod Blade Deviations," MFN 03-103, September 23, 2003

This communication is to inform you that GE Nuclear Energy (GENE) has completed the evaluation of the potentially reportable condition (PRC) identified in References 2 and 3 and has concluded that it is NOT a Reportable Condition under 10CFR21.

Channel bow can cause increased deflection and stresses in control rod blades. The impact of channel bow on as-designed control rod blades was considered when the surveillance program identified in Reference 1 was developed. However, the evaluation did not consider known control rod blade deviations from as-designed conditions that had previously been addressed. The evaluation to determine the the impact of channel bow on control rod blade deviations, as reported to the NRC in References 2 and 3, has now been completed. The evaluation concluded that the increased loads from channel bow do not impact the structural integrity of control rods with known deviations from as-designed conditions. Therefore, it does not produce a significant safety hazard or lead to violation of a technical specification safety limit.

As described in the Reference 1 letter, it was determined that BWR/6 and BWR/4 & 5 C-lattice plants with Global Nuclear Fuel (GNF) thick/thin channels are potentially susceptible to increased channel bow that can cause increased fuel channel – control rod blade interference. A surveillance program is recommended per Reference 1 for the

MFN 03-146  
November 18, 2003

potentially susceptible plants listed in Attachment 1. This evaluation examines known deviations from the as-designed condition for original equipment manufactured (OEM) control rod blades and for DuraLife™ and Marathon™ replacement blades in the potentially susceptible plants.

The PRC evaluation was initiated by GENE on May 19, 2003. GENE reported the results of the evaluation for OEM blades and DuraLife™ replacement blades in Reference 3. GENE has now completed the evaluation applicable to Marathon™ replacement blades. These evaluations indicate that there is no change from the previous information provided in Reference 1. Therefore, GENE is submitting this Final Notification to inform the NRC that the evaluations have been completed, and to report the GENE conclusion that this is NOT a Reportable Condition per 10CFR21.

Please contact me if you have any questions on this information at (408) 925-5362.

Sincerely,



Jason. S. Post, Manager  
Engineering Quality and Safety Evaluations

Attachment:

1. Plants Recommended for Surveillance Program

cc: S. D. Alexander (NRC-NRR/DISP/PSIB) Mail Stop 6 F2  
J. F. Foster (NRC-NRR/DRIP/RORP) Mail Stop 12 H2  
A. B. Wang (NRC-NRR/DLPM/LPD4) Mail Stop 7 E1  
J. F. Klapproth (GENE)  
H. J. Neems (GENE)  
G. B. Stramback (GENE)  
B. J. Erbes (GENE)  
PRC File

MFN 03-146

November 18, 2003

# ATTACHMENT 1

## Plants Recommended for Surveillance Program

	<u>Utility</u>	<u>Plant</u>
<u>X</u>	AmerGen Energy Co.	Clinton
<u>      </u>	AmerGen Energy Co.	Oyster Creek
<u>      </u>	Carolina Power & Light Co.	Brunswick 1
<u>      </u>	Carolina Power & Light Co.	Brunswick 2
<u>      </u>	Constellation Nuclear	Nine Mile Point 1
<u>X</u>	Constellation Nuclear.	Nine Mile Point 2
<u>X</u>	Detroit Edison Co.	Fermi 2
<u>      </u>	Dominion Generation	Millstone 1
<u>      </u>	Energy Northwest	Columbia
<u>      </u>	Entergy Nuclear Northeast	FitzPatrick
<u>      </u>	Entergy Nuclear Northeast	Pilgrim
<u>X</u>	Entergy Operations, Inc.	Grand Gulf
<u>X</u>	Entergy Operations, Inc.	River Bend
<u>      </u>	Entergy Nuclear Northeast	Vermont Yankee
<u>      </u>	Exelon Generation Co.	CRIT Facility
<u>      </u>	Exelon Generation Co.	Dresden 2
<u>      </u>	Exelon Generation Co.	Dresden 3
<u>      </u>	Exelon Generation Co.	LaSalle 1
<u>      </u>	Exelon Generation Co.	LaSalle 2
<u>X</u>	Exelon Generation Co.	Limerick 1
<u>X</u>	Exelon Generation Co.	Limerick 2
<u>      </u>	Exelon Generation Co.	Peach Bottom 2
<u>      </u>	Exelon Generation Co.	Peach Bottom 3
<u>      </u>	Exelon Generation Co.	Quad Cities 1
<u>      </u>	Exelon Generation Co.	Quad Cities 2
<u>X</u>	FirstEnergy Nuclear Operating Co.	Perry 1
<u>      </u>	Nebraska Public Power District	Cooper
<u>      </u>	Nuclear Management Co.	Duane Arnold
<u>      </u>	Nuclear Management Co.	Monticello
<u>      </u>	Pooled Equipment Inventory Co.	PIM
<u>      </u>	PPL Susquehanna LLC.	Susquehanna 1
<u>      </u>	PPL Susquehanna LLC	Susquehanna 2
<u>      </u>	Public Service Electric & Gas Co.	Hope Creek
<u>      </u>	Southern Nuclear Operating Co.	Hatch 1
<u>      </u>	Southern Nuclear Operating Co.	Hatch 2
<u>      </u>	Tennessee Valley Authority	Browns Ferry 1
<u>      </u>	Tennessee Valley Authority	Browns Ferry 2
<u>      </u>	Tennessee Valley Authority	Browns Ferry 3